Stormwater Management Financing Strategy for Hampton Roads Virginia

This report discusses the variety of state and federal stormwater management programs that require local government implementation activities. Programs are described and financial needs of localities associated with the with implementation are documented. Options for financing stormwater facilities are described and evaluated. A financing strategy, and a model stormwater utility ordinance for use by the region's local governments are recommended.

Hampton Roads Planning District Commission
Contact: John Carlock, 804.420.8300
January 1990
1989 Task 37

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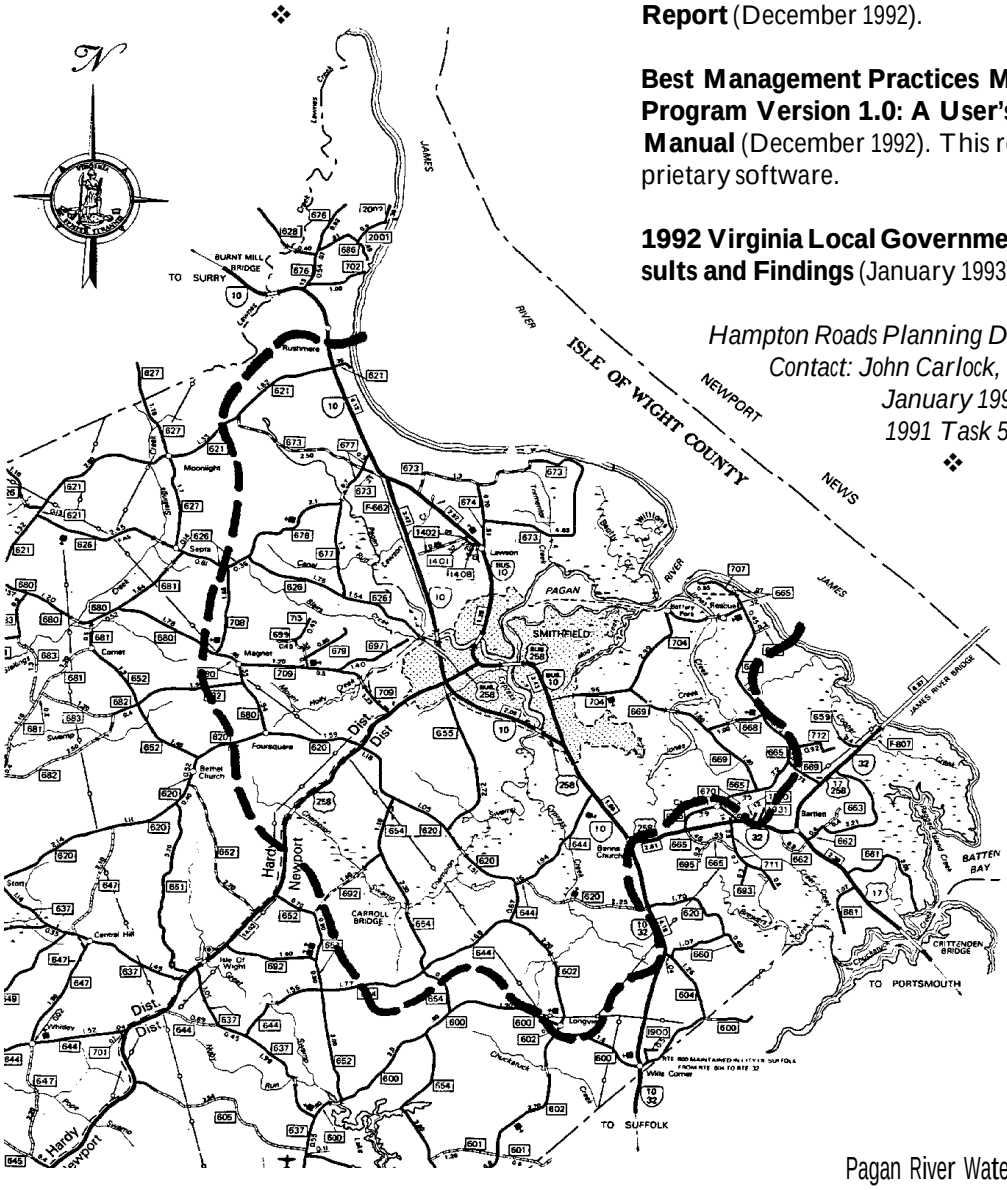

Pagan River Watershed

Hampton Roads Planning District Regional Stormwater Management Program

The program, documented in a series of reports, encompasses the regional stormwater management technical assistance program of the HRPDC. Reports produced through this program include:

Cooling Tower Discharge Policy and Guidance Manual (November 1992).

Institutional Process for Stormwater Management in Shared Watersheds - The Pagan River Watershed: A Pilot Study (December 1992).

Regional Stormwater Coordination Process: A Status Report (December 1992).

Best Management Practices Maintenance Tracking Program Version 1.0: A User's Guide and Software Manual (December 1992). This report includes non-proprietary software.

1992 Virginia Local Government Utility Survey: Results and Findings (January 1993).

Hampton Roads Planning District Commission
Contact: John Carlock, 757.420.8300
January 1993
1991 Task 56

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Eastern Shore Groundwater Supply Protection and Management Plan

This study summarized available information on water withdrawals, land use threats, and current control mechanisms on the Eastern Shore of Virginia. The report proposes recommendations to develop a comprehensive groundwater protection and supply management plan which will maintain an adequate supply of water and sustain high water quality for the future needs of the region.

Accomack-Northampton Planning District Commission
Contact: Jim McGowan, 804.787.2936
November 1991
1990 Task 58

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Eastern Shore Model Comprehensive Plan Groundwater Amendment

This plan provides a comprehensive and practical series of options, alternatives, and specific actions to promote compatibility between the Eastern Shore's water resources and the land use plans of Accomack County and Northampton County. The plan includes a detailed analysis of Eastern Shore groundwater resources and issues, and makes recommendations for the protection and management of the groundwater.

Accomack-Northampton
Planning District Commission
Contact: Jim McGowan, 804.787.2936
September 1992
1991 Task 52

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King George County Planning and Stormwater Management Study

This planning study provides a set of tools for applying the principles specified in other regulatory and guidance manuals directly to stormwater management in King George County. The tools, including computer software and databases, provide a technically accurate and easily applied means for implementing relevant regulations, reviewing specific development alternatives, and exploring management questions.

King George County
Contact: 540.775.7111
September 1991
1990 Task 54

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Stafford County Groundwater Resource Protection Program

This study investigated the impact of potential development on Stafford County's groundwater resources. Computer modeling techniques, field studies, the evaluation of safe yields, and the potential for artificial and natural recharge in selected aquifer systems are discussed in order to provide recommendations which can mitigate any future degradation.

County of Stafford
Contact: Bill Shelley, 540.659.8668
December 1991
1990 Task 63

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Stafford County Stormwater Ordinance

This ordinance establishes minimum stormwater management requirements for developments. It seeks to protect the safety and welfare of the county residents and businesses; reduce flood damage to property; minimize the impacts of increased stormwater runoff from new land development; and maintain the adequacy of existing and proposed culverts, bridges, dams, and other structures.

County of Stafford
Contact: 703.659.8668
December 1993
1991 Task 68

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Stormwater/Erosion and Sediment Control Ordinances for Spotsylvania County

These ordinances are designed to protect and conserve steep slopes, public drinking water supplies, and flood plain areas. The report contains a draft amendment to the Erosion and Sediment Control Ordinances for steep slopes, steep slope maps, environmentally sensitive areas map, and digital map files for the Chancellorsville-Salem Church-Fredericksburg Quad Study area.

Spotsylvania County
Contact: 703.582.7146
March 1993
1991 Task 67

❖

Groundwater Protection Handbook for Southeastern Virginia

This report provides an overview of the groundwater hydrology in the Coastal Plain of Virginia, in particular southeastern Virginia. It describes groundwater use and threats in the region. Groundwater protection techniques for use by local governments are described. Model provisions for protection ordinances are included.

Hampton Roads Planning District Commission
Contact: John Carlock, 804.420.8300
January 1990
1988 Task 37

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Hampton Roads Best Management Practices Design Guidance Manual

This manual presents a general planning methodology which was designed to facilitate local government compliance with the state and federal stormwater management requirements, in order to achieve an integrated system of stormwater detention basins. Potential strategies for the design, installation, and maintenance of stormwater facilities are examined. The impact of multiple designs on the cost and performance of stormwater management systems is investigated. Both water quality and quantity are considered. The strategies are applied to catchments constructed for average geomorphic parameters found in the Hampton Roads area.

Hampton Roads Planning District Commission
Contact: John Carlock, 804.420.8300
December 1991
1991 Task 37

❖

York County Stormwater Management Plan

This engineering summary report provides information regarding the use of drainage basin computer models and stormwater improvement plans, which are useful to both planning and engineering staff, the development community, and the general public. The six drainage basins mentioned in the study are representative of the broad range of topographic conditions, conveyance system variations, land uses, and other variables which affect drainage basin hydrology and drainage system hydraulics found in York County.

County of York
Contact: Cindy Taylor, 804.890.3300
September 1991
1990 Task 70

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Gloucester Comprehensive Stormwater Management Program

Gloucester County is a rural area that has experienced accelerated population growth in the last decade. This project involved the development of a stormwater management plan for a 40-square-mile development zone, which incorporates water resource management into the county's land use, transportation and public facility practices. The county produced a **Program Development Manual for Comprehensive Stormwater Management**, which includes sections on land use and another on public facility planning. Methods of stormwater maintenance are discussed, including on-site retention, private maintenance associations, and the installation of a stormwater utility program. Gloucester County's choice to utilize a short-term stormwater ordinance is also discussed. Copies of the county's draft comprehensive plan amendment relative to land use, transportation, and stormwater management and a draft stormwater management ordinance are included.

Gloucester County
Contact: Jeff Haughney, 804.693.4040
March 1994
1992 Task 54

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City of Newport News Urban Filter Strip

The Urban Filter Strip project incorporated special design features and installation procedures to establish what is essentially a constructed forest-floor soil regime. The special soil mix and plantings work together to retain sediment and process pollutants after they drain off the parking lot, but before they reach the storm sewer system. This filter strip provides a low maintenance alternative to conventional stormwater pond, offers a permanent installation for confined sites where either construction or reconstruction of a pond is impractical, and has dual use as a visual barrier and landscape amenity. The city has begun to monitor the suspended solids, oils, metals, nitrogen and phosphorus levels. The monitoring will occur bi-monthly for a year.

City of Newport News
Contact: Kristine Hall, 757.247.7934
September 1996
1994 Task 74

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Activated Carbon/Sand Filter Stormwater Pond Demonstration

Ultra-urban environments, typically highly developed, downtown areas, are a significant source of pollution, and present unique problems in nonpoint source pollution. They are characterized by highly impervious areas, high property values, and a lack of space on which to site conventional stormwater ponds. They are also a source of concentrated pollutants in runoff because of the degree of motor vehicle activity. The objective of this project was to design and implement an unconventional pond that would: 1) increase the removal of heavy metals, hydrocarbons, and other pollutants associated with ultra-urban runoff; 2) maintain recognized efficiency for removal of nutrients that contribute to the degradation of the Bay and coastal waters; 3) reduce maintenance time and costs through planned design; 4) provide a model that can be used in urban areas both regionally and nationally; and, 5) provide a pond that may serve as a site for future filtration testing.

This report investigates the effectiveness of a sand filtration design, which uses a layer of activated carbon to help remove heavy metals and hydrocarbons, over the course of 10 storm events. Results and conclusions of the effectiveness of this carbon/sand filter as a Best Management Practice for stormwater are discussed.

City of Portsmouth
Contact: Sid Kitterman, 804.393.8592
December 1996
1994 Task 72

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